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BOARD OF PATENT APPEALS
AND INTERFERENCES

THIS OPINION WAS NOT WRITTEN FOR PUBLICATION

75-0540
This opinion in support of the decision being entered today (1) was not written for publication in a law journal and (2) is not binding precedent of the Board.

Paper No. 15

UNITED STATES PATENT AND TRADEMARK OFFICE

BEFORE THE BOARD OF PATENT APPEALS
AND INTERFERENCES

Ex parte D. W. REPPERGER
and W. B. ALBERY

Appeal No. 95-0540
Application No. 07/994,200¹

ON BRIEF

Before THOMAS, KRASS and JERRY SMITH, Administrative Patent Judges.

JERRY SMITH, Administrative Patent Judge.

DECISION ON APPEAL

This is a decision on the appeal under 35 U.S.C. § 134 from the examiner's rejection of claims 1-12, which constitute all the claims in the application.

¹ Application for patent filed December 4, 1992.

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The claimed invention pertains to an airborne spatial disorientation apparatus for protecting an aircrew member from spatial disorientation caused by aircraft maneuvering. More specifically, the perceived orientation by the aircrew member is compared to the actual orientation of the aircraft, and a signal is given to the aircrew member when predetermined difference limits are exceeded.

Representative claim 1 is reproduced as follows:

1. Airborne spatial disorientation apparatus for protecting an aircrew member from the effects of aircraft maneuvering related spatial disorientation, said apparatus comprising the combination of:

first means for computing electrical signals representing true position and orientation of said aircraft with respect to an earth reference;

second means, inclusive of dead zone and noise tolerant mathematical models for a plurality of human position and orientation perceiving functions, for computing electrical signals representing aircrew member perceived position and orientation of said aircraft;

means for comparing differences between said true position and perceived position and said true orientation and perceived orientation electrical signals with predetermined difference magnitude limits therefor; and

means for informing said aircrew member of instances when said predetermined difference magnitude limits are exceeded.

The examiner relies on the following references:

Vermilion et al. (Vermilion)	5,001,476	Mar. 19, 1991
Crosbie et al. (Crosbie)	5,021,982	June 04, 1991

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Claims 1-12 stand rejected under 35 U.S.C. § 103. As evidence of obviousness the examiner offers Crosbie in view of Vermilion.

Rather than repeat the arguments of appellants or the examiner, we make reference to the briefs and the answer for the respective details thereof.

OPINION

We have carefully considered the subject matter on appeal, the rejection advanced by the examiner and the evidence of obviousness relied upon by the examiner as support for the rejection. We have, likewise, reviewed and taken into consideration, in reaching our decision, the appellants' arguments set forth in the briefs along with the examiner's rationale in support of the rejection and arguments in rebuttal set forth in the examiner's answer.

It is our view, after consideration of the record before us, that the collective evidence relied upon and the level of skill in the particular art would not have suggested to one of ordinary skill in the art the obviousness of the invention as set forth in claims 1-12. Accordingly, we reverse.

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The examiner essentially relies on Crosbie for teaching a process for controlling a motion base system to duplicate visual, physiological and proprioceptive sensations experienced by a pilot in a high speed aircraft. That is, Crosbie teaches that a pilot will undergo feelings of disorientation during certain aircraft maneuvers and seeks to duplicate these feelings in an aircraft simulator. Crosbie does not measure the actual position and orientation of an aircraft, does not compare measured amounts of disorientation with predetermined limits, and does not inform the pilot of instances when the predetermined limits are exceeded. The examiner relies on Vermilion as a conventional aircraft warning system in which conditions of the aircraft are compared against danger levels and a warning is given to the pilot when dangerous conditions are detected. In the view of the examiner, Vermilion makes up for all the deficiencies present in Crosbie. Appellants have responded with several arguments pointing out the alleged errors in the examiner's position, and we will consider only enough of those arguments to support our decision in this appeal.

In rejecting claims under 35 U.S.C. § 103, it is incumbent upon the examiner to establish a factual basis to support the legal conclusion of obviousness. See In re Fine, 837 F.2d 1071,

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1073, 5 USPQ2d 1596, 1598 (Fed. Cir. 1988) and compare
Stratoflex, Inc. v. Aeroquip Corp., 713 F.2d 1530, 1535, 218 USPQ
871, 876 (Fed. Cir. 1983). In so doing, the examiner is expected
to make the factual determinations set forth in Graham v. John
Deere Co., 383 U.S. 1, 17, 148 USPQ 459, 467 (1966), and to
provide a reason why one having ordinary skill in the pertinent
art would have been led to modify the prior art or to combine
prior art references to arrive at the claimed invention. Such
reason must stem from some teaching, suggestion or implication in
the prior art as a whole or knowledge generally available to one
having ordinary skill in the art. Uniroyal, Inc. v. Rudkin-Wiley
Corp., 837 F.2d 1044, 1051, 5 USPQ2d 1434, 1438 (Fed. Cir. 1988),
cert. denied, 488 U.S. 825 (1988); Ashland Oil, Inc. v. Delta
Resins & Refractories, Inc., 776 F.2d 281, 293, 227 USPQ 657, 664
(Fed. Cir. 1985), cert. denied, 475 U.S. 1017 (1986); ACS
Hospital Systems, Inc. v. Montefiore Hospital, 732 F.2d 1572,
1577, 221 USPQ 929, 933 (Fed. Cir. 1984). These showings by the
examiner are an essential part of complying with the burden of
presenting a prima facie case of obviousness. Note In re
Oetiker, 977 F.2d 1443, 1445, 24 USPQ2d 1443, 1444 (Fed. Cir.
1992). When these rules are applied to the facts in this appeal,

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we conclude that the examiner has failed to satisfy his burden of presenting a prima facie case of obviousness.

The essential feature of independent claims 1 and 12 is the notification to the crew member that his or her perceived position and orientation of the aircraft differs from the actual position and orientation of the aircraft by a predetermined amount. Neither Crosbie nor Vermilion recognizes this feature as either necessary or desirable, and neither reference supports any meaningful combination of their respective teachings.

Since Crosbie simply attempts to duplicate the "sensations" that a pilot would experience during actual flight, Crosbie does not measure the actual amount of disorientation experienced by the pilot for comparison against some limit during the actual time of the simulation. That is, the disorientation in Crosbie is only viewed as something to be recreated, and not as something to be concerned about. Whatever disorientation is created in Crosbie is intentionally placed there and poses no concern whatsoever for a pilot going through a simulation. There would thus be no need to inform the pilot in Crosbie of anything because the pilot would know that everything was part of a simulation and, therefore, not real.

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Vermilion adds nothing that would suggest its combination with Crosbie. Vermilion teaches the conventional warning system based on detected physical conditions of the aircraft and such system has nothing whatsoever to do with a pilot's disorientation and the need to inform the pilot of such. The examiner has simply identified that apparatus for performing the functions of computing, comparing values, informing a pilot of something dangerous and other claimed means were each individually known to the artisan. The examiner, however, has failed to present a cogent analysis as to why the specific functions recited in independent claims 1 and 12 would have been combined into a singular device based upon the prior art applied by the examiner.

In the final rejection the examiner indicates that although the claimed comparison is not performed by the applied prior art, the values recited in the claims may be compared. Further, the examiner adds that a warning signal based upon this comparison could be generated. Finally, the examiner supports the combination of teachings on the basis that such combination would "permit a higher degree of accuracy and precision." All of these positions demonstrate an incorrect standard of obviousness within the meaning of 35 U.S.C. § 103.

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The fact that a modification to the prior art may result in a device of higher accuracy and precision, per se, does not support a position of obviousness based upon the prior art. Presumably, modifications to the prior art are frequently made to achieve higher accuracy and precision. However, in order for such modifications to be obvious within the meaning of § 103, they must result from suggestions appearing in the prior art. Thus, the motivation given by the examiner for combining the teachings of Vermilion with Crosbie is based upon a result rather than upon a prior art suggestion. Nothing in Crosbie or Vermilion suggests that the combination recited in claims 1 and 12 is either desirable or necessary. Prior art references in combination do not make an invention obvious unless something in the prior art references would suggest the advantages to be derived from combining their teachings. In re Sernaker, 702 F.2d 989, 994, 217 USPQ 1, 5 (Fed. Cir. 1983). We can find no basis for the artisan to even consider the teachings of Crosbie and Vermilion to be sufficiently related to result in their teachings being collectively considered in this case.

The mere fact that the prior art may be modified in the manner suggested by the examiner does not make the modification obvious unless the prior art suggested the desirability of the

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modification. In re Fritch, 972 F.2d 1260, 1266, 23 USPQ2d 1780, 1783-84 (Fed. Cir. 1992); In re Gordon, 733 F.2d 900, 902, 221 USPQ 1125, 1127 (Fed. Cir. 1984). There is no point in combining the teachings of Vermilion with Crosbie because, as noted above, informing the pilot in the simulator of dangerous conditions serves no purpose in the simulator.

In order to rely on a reference as a basis for rejection of the claimed invention, the reference must either be in the field of the applicant's endeavor or, if not, then be reasonably pertinent to the particular problem with which the inventor was concerned. See In re Deminski, 796 F.2d 436, 442, 230 USPQ 313, 315 (Fed. Cir. 1986). In our view, neither Crosbie nor Vermilion is especially relevant to the problem of alerting an aircrew member to dangerous levels of disorientation because neither reference recognizes disorientation as a potential danger.

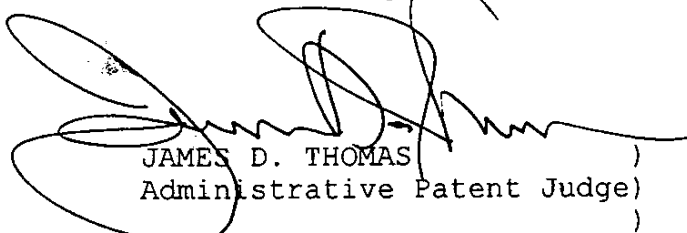
We are also unpersuaded by the examiner's reasoning that a Kalman type filter would have been obvious in this invention just because Kalman filters were known. The examiner's reasoning is that a Kalman filter would permit increased stability in the mathematical models. We are not convinced that this is a predictable result nor necessarily a desirable feature in these models. It is also clear that a possible result of increased


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stability cannot be equated with obviousness within the meaning of § 103 absent a suggestion of such modification in the applied prior art.


For all the reasons discussed above, we find that the teachings of Crosbie and Vermilion fail to support the examiner's rejection of independent claims 1 and 12. Since claims 2-11 all depend directly or indirectly from claim 1, the applied prior art also fails to suggest the invention of these claims. Therefore, the decision of the examiner rejecting claims 1-12 under 35 U.S.C. § 103 is reversed.

REVERSED


JAMES D. THOMAS
Administrative Patent Judge)


ERROL A. KRASS
Administrative Patent Judge)

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JERRY SMITH
Administrative Patent Judge)

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